ORIGINAL

Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554

Amendment of the Commission's Rules to Incorporate Mobile Earth Station Out-of-Band Emission Limits	)	RM No. 9165

COMMENTS
OF
CONSTELLATION COMMUNICATIONS, INC.

Constellation Communications, Inc. ("CCI"), by its attorneys, hereby responds to the September 18, 1997 proposal of the United States Department of Commerce, National Telecommunications and Information Administration ("NTIA Proposal") to establish out-of-band ("OOB") emission limits on the operation of mobile earth terminals ("METs") operating in the 1610-1660.5 MHz band allocated to the Mobile Satellite Service ("MSS"). In these comments, CCI urges the Commission to develop a detailed technical analysis of OOB sharing issues raised by the operation of METs in the 1610 - 1660.5 MHz band before the issuing a Notice of Proposed Rulemaking based on the NTIA Proposal. Specifically, CCI does not believe that there is any credible technical justification in the record today to support adoption of the proposed OOB emission limitations across the entire 1559-1605 MHz band.

I. Background

CCI is a Commission licensee authorized to construct, launch and operate a low-Earth orbit Mobile Satellite Service ("MSS") system that will operate Earth-to-space service links in the 1610-1621.35 MHz band.[1] Although the Commission made this band available for METs,[2] it recognized in the *Report and Order* adopting rules for this service that adjacent users must be protected from

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1 *See Constellation Communications, Inc.*, DA 97-1366, *Order and Authorization*, released July 1, 1997.

2 *See Amendment of the Commission's Rules to Establish Rules and Policies Pertaining to a Mobile Satellite Service in the 1610-1626.5/2483.5-2500 MHz Frequency Bands*, 9 FCC Rcd 5936 at ¶ 137 (1994). *("Report and Order")*

OOB emissions caused by the METs. Specifically, the Commission was concerned about the impact that the operations of these METs would have on GPS and GLONASS operations in bands below 1610 MHz. In the first case, the Commission adopted an OOB emission limitation to protect GPS. Specifically, the Commission required that the OOB emissions of METs operating in the 1610-1626.5 MHz band not exceed an e.i.r.p. density level of -70 dB(W/MHz) averaged over any 20ms period to GPS systems operating in the 1574.397 - 1576.443 MHz band.[3] The NTIA Proposal now seeks to establish new protection criteria for GPS. Specifically, NTIA proposes to extend OOB emissions protection to the entire 1559-1580.42 MHz band. The NTIA Proposal also seeks to establish OOB emission limitations to protect GLONASS. The Commission noted in the *Report and Order* that the MSS Above 1 GHz Negotiating Rulemaking Committee could not agree on OOB emission limits for GLONASS, and the record did not contain a suitable methodology for determining such limits.[4] It thus deferred consideration of this issue to RTCA Working Group SC 159 ad hoc. No consensus emerged on how to protect GLONASS in the RTCA deliberations. In order to protect GLONASS, the NTIA Proposal establishes OBB limitations of -64 dBW/MHz for METs commissioned prior to January 1, 2002 and a -70 dB(W/MHz) for METs commissioned after January 1, 2002. As discussed below, CCI believes that there is currently insufficient technical information to support initiation of a rulemaking based on the NTIA Proposal.

II. There is Insufficient Technical Data to Support Adoption of New OOB Limitations to Protect GPS.

CCI has reviewed the record on the issues raised by the NTIA Proposal and believes that there is insufficient technical information provided by the September 18, 1997 NTIA letter to warrant initiation of a rulemaking to extend the current protection level of GPS receivers from out-of-band emissions to the entire 1559-1605 MHz band. Section 25.213(c) of the Commission's Rules currently requires MET transmitters in the 1610-1626.5 MHz band to limit their out-of-band emissions to a maximum EIRP of -70 dB(W/MHz) within the 1574.397 - 1576.443 MHz band. This

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[3] *See* 47 C.F.R. § 25.213(b).

[4] 9 FCC Rcd 5936.

rule was a compromise agreement made during the Big LEO Negotiated Rulemaking proceedings in CC Docket 92-166 to insure that GPS was provided with adequate OOB emission protection. Despite the controversy over the data presented, and, in particular, the unrealistically conservative worst case interference model postulated by the aviation interests, this specific protection criteria was accepted in large part due to the frequency separation between the GPS band to be protected and the lowest transmit frequency of the METs. The absence of an agreement for smaller frequency separations is evidence of the difficulties in achieving such a stringent out-of-band emission limit. Given the nature of the compromise reached at the Negotiated Rulemaking proceeding, any extension of the -70 dB(W/MHz) out-of-band emission limit must be based on realistic requirements of the aviation community balanced against the economic implications such limit has on MET transmitters.

The NTIA Proposal simply extends the current GPS protection level to a much wider band, *i.e.,* from the 1574.397 - 1576.443 MHz band specified in §25.213(c) to the 1559 - 1580.42 MHz band for wideband MET transmissions. No transition period is proposed for this band extension. Moreover, there is no reason given for the extension of this bandwidth, which would reduce the frequency separation between the protected band and the lowest MSS transmit frequency. Absent a clear and compelling justification, the negotiated GPS protection band should not simply be extended, but should be treated on the same basis as consideration of GLONASS protection for the purposes of any rulemaking.

III. There is Insufficient Technical Data to Support Adoption of OOB Limitations to Protect GLONASS.

The protection levels to be afforded for GLONASS should also have a sound technical basis. Protection levels should be based on the requirements of modern, high quality radionavigation-satellite receivers typical of the models to be installed in aircraft for precision landings, and on a realistic interference model that reflects the actual impact of out-of-band emissions on the position determination accuracy of the Global Navigation Satellite System ("GNSS") receiving system as a whole and not any individual signal within the system. In addition, the protection level should take into account the technical and economic impact on MET transmitters and waveform parameters. It

should be incumbent on the aviation community to demonstrate that any new out-of-band emission protection level to be specified in the rules is the least stringent one necessary to protect critical aviation operations. The NTIA Proposal does not meet this requirement.

IV. The FAA and NTIA Should Not Be Given Authority to Approve MET Hardware/Software Implementation.

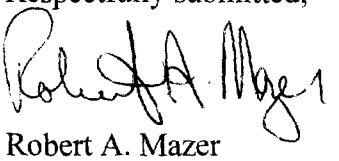
The NTIA Proposal includes a requirement for FAA and NTIA approval of MET hardware/software implementation. This is a very troublesome proposal, because it implies a regulatory intrusion into technical and business areas outside the normal purview of the FAA, NTIA and the FCC. Even if a standard is to be adopted which involves limiting the frequencies on which an MSS may operate, the Commission should not be involved in approving specific hardware/software implementations of METs. Rather, the Commission's licensing procedures should be focused on the radio emission characteristics of the equipment, and not on the internal hardware or software details of how the radio emission control functions are implemented. There is no basis in the NTIA Proposal to justify the requirement for governmental regulation of specific hardware/software implementation details.

V. Conclusion

CCI believes that the NTIA Proposal does not contain sufficient justification to warrant initiation of a rulemaking at this time. A more detailed record must be established to identify realistic protection requirements for air traffic control use of GPS and GLONASS and the technical and cost impact on MET transmitters before consideration can be given to the extension

of the current -70 dB(W/MHz) out-of-band emission limit of §25.213(c) to a wider band of frequencies.

Respectfully submitted,



Robert A. Mazer
Albert Shuldiner
Vinson & Elkins L.L.P.
1455 Pennsylvania Avenue, N.W.
Washington, D.C. 20554
(202) 639-6500

December 8, 1997

Counsel For Constellation Communications, Inc.

CERTIFICATE OF SERVICE

I HEREBY CERTIFY that on this 8th day of December, 1997, a true and correct copy of the foregoing Comments of Constellation Communications, Inc. of Constellation Communications, Inc. was served by first class mail, postage prepaid, upon the following:

* Chairman William E. Kennard
Federal Communications Commission
1919 M Street, N.W., Room 814
Washington, D.C. 20554

* Commissioner Harold Furchtgott-Roth
Federal Communications Commission
1919 M Street, N.W., Room 802
Washington, D.C. 20554

* Commissioner Michael Powell
Federal Communications Commission
1919 M Street, N.W., Room 844
Washington, D.C. 20554

* Commissioner Susan Ness
Federal Communications Commission
1919 M Street, N.W., Room 832
Washington, D.C. 20554

* Commissioner Gloria Tristani
Federal Communications Commission
1919 M Street, N.W., Room 826
Washington, D.C. 20554

* Ms. Regina Keeney
Chief, International Bureau
Federal Communications Commission
2000 M Street, N.W., Room 830
Washington, D.C. 20554

* Mr. Thomas S. Tycz
Division Chief, Satellite &
Radiocommunication Division
International Bureau
Federal Communications Commission
2000 M Street, N.W., Room 520
Washington, D.C. 20554

* Ms. Fern J. Jarmulnek
Chief, Satellite &
Radiocommunication Division
International Bureau
Federal Communications Commission
2000 M Street, N.W., Room 520
Washington, D.C. 20554

* Karl Kensinger
Federal Communications Commission
2000 M Street, N.W., Room 514
Washington, D.C. 20554

* Mr. Harold Ng
Engineering Advisor
Satellite & Radiocommunications Division
International Bureau
Federal Communications Commission
2000 M Street, Room 801
Washington, D.C. 20554

* Ms. Cassandra Thomas
Deputy Division Chief
Satellite & Radiocommunication Division
International Bureau
Federal Communications Commission
2000 M Street, N.W., Room 810
Washington, D.C. 20554

* William Bell
Federal Communications Commission
2000 M Street, N.W., Room 508
Washington, D.C. 20554

Bruce D. Jacobs, Esquire
Glenn S. Richards, Esquire
Fisher Wayland Cooper Leader
& Zaragoza L.L.P.
2001 Pennsylvania Ave., N.W. Suite 400
Washington, D.C. 20006-1851

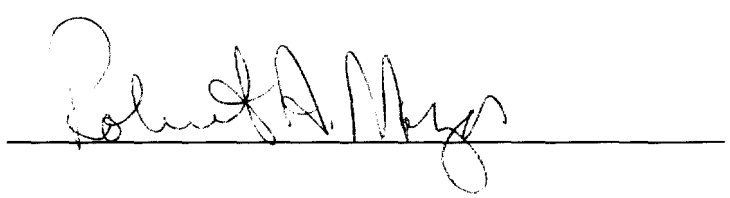
Philip L. Malet, Esquire
Alfred M. Mamlet
Steptoe & Johnson
1330 Connecticut Avenue, N.W.
Washington, D.C. 20036

Norman P. Leventhal, Esquire
Raul R. Rodriguez, Esquire
Stephen D. Baruch, Esquire
Leventhal, Senter & Lerman
2000 K Street, N.W. Suite 600
Washington, D.C. 20006-1809

Leslie Taylor, Esquire
Leslie Taylor Associates
6800 Carlynn Court
Bethesda, MD 20817-4302

William Wallace, Esquire
Crowell & Moring
1001 Pennsylvania Avenue, N.W.
Washington, D.C. 20004-2505

Jill Abeshouse Stern, Esquire
Shaw, Pittman, Potts & Trowbridge
2300 N Street, N.W.
Washington, D.C. 20037



*By Hand Delivery